Claims 1-16 remain in the application.

In the second paragraph on page 2 of the above-identified Office action, claims 1-16 have been rejected as being unpatentable over Pfeffinger et al. (U.S. Patent No. 6,221,504 B1) in view of Beyer et al. (U.S. Patent No. 6,197,368 B1) under 35 U.S.C. § 103.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 defines a process for producing a wear-resistant, tribological cylinder bearing surface (16) for a piston (41) running in a cylinder (20) of a crankcase (40) of an internal-combustion engine, the process includes the steps of:

a) positioning a laser (10) such that a longitudinal axis (26) of the laser (10) is substantially coaxial to a

cylinder (20) of a crankcase (40) of an internal-combustion engine;

b) rotating the laser (10) about the longitudinal axis (26) of the laser (10) and simultaneously advancing the laser (10) in a direction of the longitudinal axis (26) of the laser (10);

c) feeding a powdery material through the laser (10) and directing a jet (13) of the powdery material to a cylinder bearing surface (16) of the cylinder;

d) deflecting a laser beam (22) to an impact region (14) where the jet (13) of the powdery material impinges on the cylinder bearing surface (16) and guiding the jet (13) of the powdery material such that at least part of the jet (13) of the powdery material passes through the laser beam (22); and

e) at least partially melting, with the laser beam (22), a surface of the impact region (14) such that the surface of the impact region (14) is at least partially melted before the powdery material impinges on the surface of the impact region.

The Examiner correctly stated that Pfeffinger et al. teach a process of coating cylinder bores of a crankcase with a wear resistant material (col. 2, line 41), and that they fail to teach the simultaneous use of a laser surface treatment.

More specifically, Pfeffinger et al. do not disclose the steps of:

a) positioning a laser such that a longitudinal axis of the laser is substantially coaxial to a cylinder of a crankcase of an internal-combustion engine;

b) rotating the laser about the longitudinal axis of the laser and simultaneously advancing the laser in a direction of the longitudinal axis of the laser;

c) feeding a powdery material through the laser;

d) deflecting a laser beam to an impact region where the jet of the powdery material impinges on the cylinder bearing surface and guiding the jet of the powdery material such that at least part of the jet of the powdery material passes through the laser beam; and

e) at least partially melting, with the laser beam, a surface of the impact region such that the surface of the impact region is at least partially melted before the powdery material impinges on the surface of the impact region, as recited in claim 1 of the instant application.

The Examiner correctly stated that Beyer et al. teach the simultaneous use of a plasma spray and lasers to apply a wear resistant coating to a metal substrate.

However, Beyer et al. do not disclose the steps of:

a) positioning a laser such that a longitudinal axis of the laser is substantially coaxial to a cylinder of a crankcase of an internal-combustion engine;

b) rotating the laser about the longitudinal axis of the laser and simultaneously advancing the laser in a direction of the longitudinal axis of the laser; and

c) feeding a powdery material through the laser, as recited in claim 1 of the instant application.

Neither Pfeffinger et al. nor Beyer et al. disclose or suggest the above-mentioned steps a) to c). First, a person of skill in the art would avoid using a movable coating device. Pfeffinger et al. point out that it would be simpler and safer to rotate the crankcase rather than the coating device (col. 6, lines 11-20). The motivation to do so would be that it is much easier to supply electrical power, cooling water, gases, and spray powder to a stationary device than to a movable device. Thus a person of skill in the art would be motivated to use a stationary laser and a stationary powder feed device rather than movable devices. Second, a person of skill in the art would not feed the powdery material directly through a movable laser because this would seem to result in a more complicated configuration than feeding the powdery material

separate from the laser as taught by Beyer et al. In summary, even a combination of the teachings of Pfeffinger et al. and Beyer et al. cannot suggest the subject matter of claim 1.

Claims 13 and 15 include structural limitations that correspond to the method limitations of claim 1. For example, neither Pfeffinger et al. nor Beyer et al. show or suggest a powder feed device (12) extending through a laser. Thus, a combination of the teachings of Pfeffinger et al. and Beyer et al. cannot suggest the subject matter of claims 13 and 15.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1, 13, or 15. Claim 1, 13, and 15 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, 13, or 15, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-16 are solicited.

Please charge any fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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For Applicants

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